

FLOW SCHEMATIC FOR FIELD SUPPLIED DATA ENTRY AND BASE STATION
OR SERVICE PROVIDER SUPPLIED COMPUTER ASSISTANCE

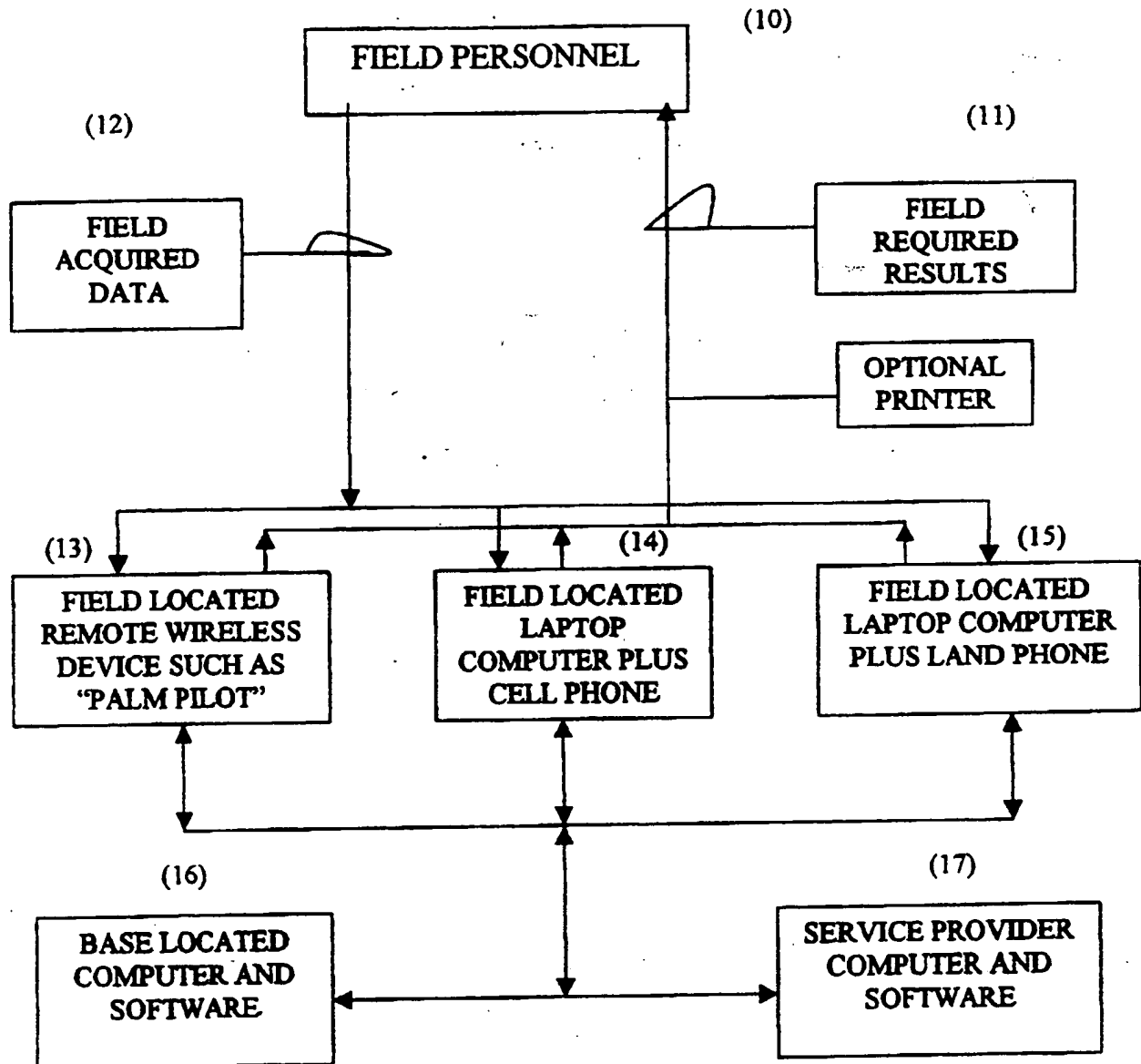


FIG. 1

PROGRAMS (18)

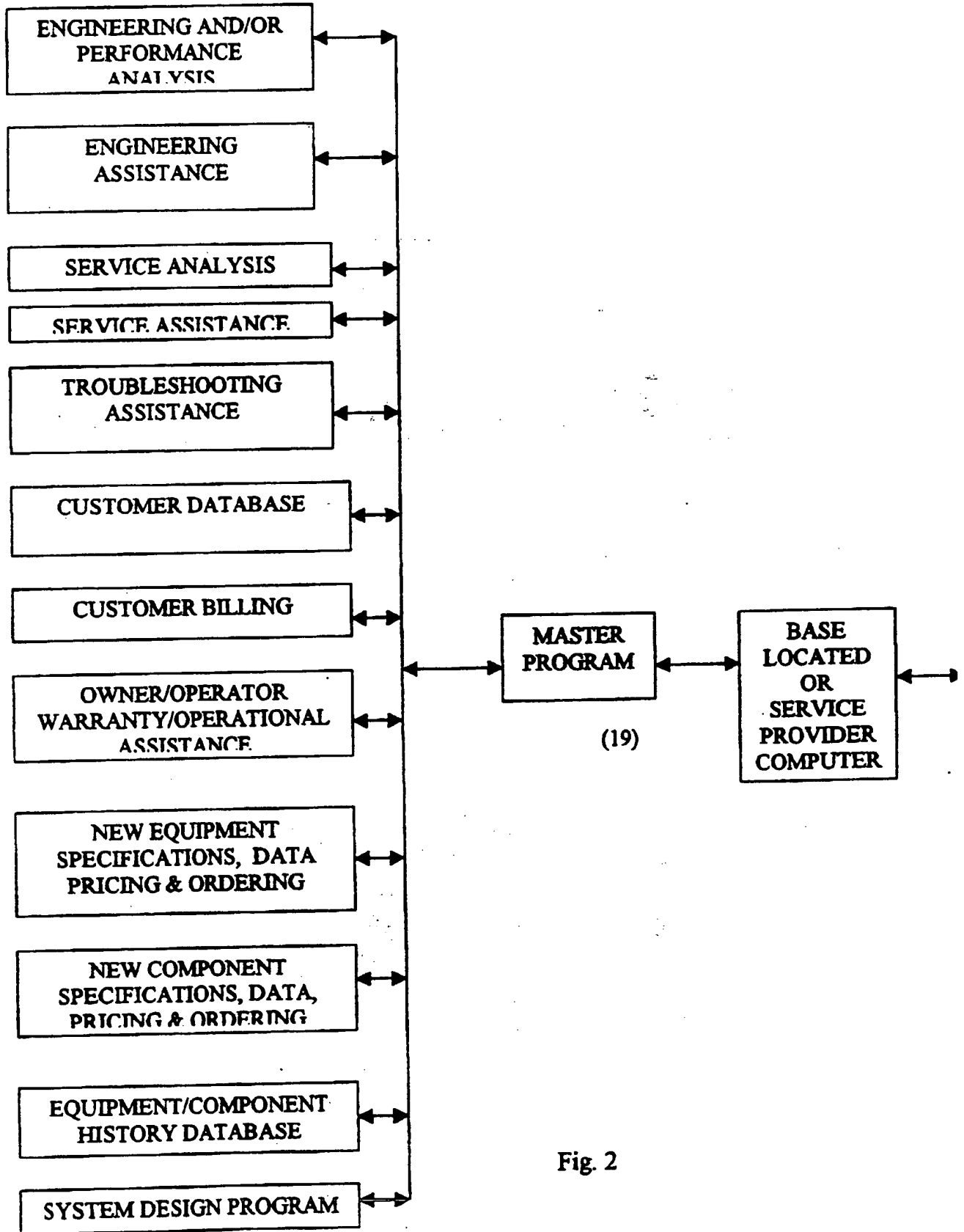


Fig. 2

FORM 65642650

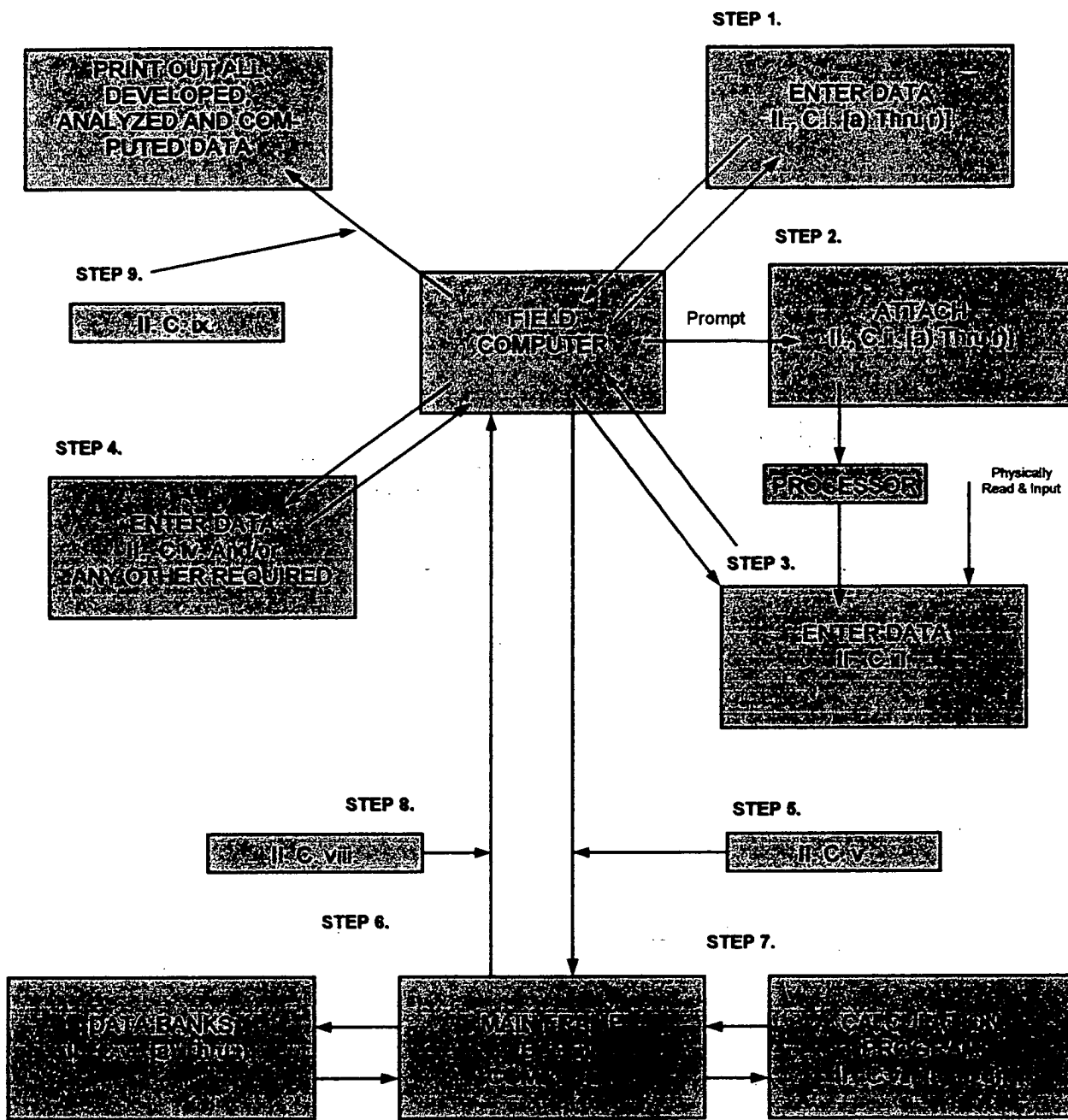


FIG. 3

FOI 65642660

II. Miscellaneous Data Sheet

Condition of:	(X which applies)		Explanation
	Good	Bad	
Condenser Coil			
Evaporator Coil			
Cabinetry AH			
Cabinetry Cond			
Ductwork			
Liquid Line Dryer			
Suction Line Dryer			
Suction Accumulator			
Liquid Receiver			
Reversing Valve			
Expansion Device			
Refrigerant Lines			
Condenser Fan Motor			
Condenser Fan Blade			
Evaporator Blower Motor			
Evaporator Blower Shaft			
Evaporator Blower Bearings			
Evaporator Blower Belts			
Electrical Wiring			
Capacitors			
Contactors			
Relays			
Transformers			
Other Component (input below)			

Obvious Oil Leak Locations

FIG. 4b

FORM 65642650

III. OPERATIONAL DATA SHEET:

Temperatures, Refrigerant (X which applies)	Fahrenheit	Celsius
Hot Gas Discharge at Compressor		
Hot Gas Entering Condenser		
Mid Condenser Coil		
Liquid out of condenser		
Liquid into expansion device		
Mid Evaporator coil		
Suction line after evaporator		
Suction line into compressor		
Heat Pump, Suction line into rev Valve		
Heat Pump, Hot Gas line into rev Valve		

Temperatures, Air (X which applies)	Fahrenheit	Celsius
Air Entering Condenser	DB	
Air Entering Condenser	WB	
Air Exiting Condenser	DB	
Air Entering Evaporator	DB	
Air Entering Evaporator	WB	
Air Exiting Evaporator	DB	
Air Exiting Evaporator	WB	
Air Exiting Air Handler	DB	
Air Exiting Air Handler	WB	

Pressures, Refrigerant (X which applies)	PSIG	PSIA
Hot Gas Discharge @ compressor		
Hot Gas Discharge @ condenser		
Liquid Refrigerant exit condenser		
Liquid Refrigerant enter Exp Device		
Suction Gas exiting evaporator		
Suction Gas entering compressor		

Pressures, Air Flow (in inches water gauge)	
Static before Air Handler	
Static after Air Handler	
Velocity pressure Transverse Avg at straight duct section with dimensions given for main supply or return plenums	

Electrical Data (Running)		Amps		Volts	Phase	hz
		L1	L2	L3		
Compressor No 1						
Compressor No 2						
Compressor No 3						
Compressor No 4						
Condenser Fan Motors						
Quantity						
Blower Motors						
Quantity						
Pumps - Chiller Circ	1					
	2					
Evaporative Tower	1					
	2					
Water Cooled Circ	1					
	2					

Temperatures, Water (X which applies)	Fahrenheit	Celsius
Chiller	EWT	
	LCWT	
Water Cooled Condenser	EWT	
	LWT	

Water Flow Rate (X which applies)	PSIG	PSIA
Chiller, Evaporator	Return Line	
Chiller, Evaporator	Supply Line	
Water Cooled Equip		
Condenser	Return Line	
Condenser	Supply Line	

Fig. 4c

IV. TROUBLE SHOOTING QUESTIONNAIRE DATA SHEET

Mark all those that apply (X)

<input type="checkbox"/>	Chiller Condenser	<input type="checkbox"/>	Geothermal
<input type="checkbox"/>	Air Cooled	<input type="checkbox"/>	Dual Source
<input type="checkbox"/>	Water Cooled		

Symptom (examples - list to be added to)

<input type="checkbox"/>	Unit will not run
<input type="checkbox"/>	Outdoor unit section will not run
<input type="checkbox"/>	Compressor will not start
<input type="checkbox"/>	Outdoor fan motor will not start
<input type="checkbox"/>	Outdoor unit condenser water pump will not start
<input type="checkbox"/>	Compressor hums but will not start
<input type="checkbox"/>	Compressor cycling on overload
<input type="checkbox"/>	Compressor off on high pressure control
<input type="checkbox"/>	Noisy compressor
<input type="checkbox"/>	Compressor loses oil
<input type="checkbox"/>	No cooling, but compressor runs continuously
<input type="checkbox"/>	Liquid Refrigerant flooding compressor (cap tube system)
<input type="checkbox"/>	Liquid Refrigerant flooding compressor (fixed orifice)
<input type="checkbox"/>	Liquid Refrigerant flooding compressor (TXV)
<input type="checkbox"/>	High head pressure
<input type="checkbox"/>	Low head pressure
<input type="checkbox"/>	High Suction Pressure
<input type="checkbox"/>	Low suction pressure
<input type="checkbox"/>	High operating costs
<input type="checkbox"/>	Other



<input type="checkbox"/>	Water Tower
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Symptom (examples - list to be added to)

<input type="checkbox"/>	Fan motor will not run
<input type="checkbox"/>	Cooling return water temperature high
<input type="checkbox"/>	Scale buildup is rapid
<input type="checkbox"/>	Sump water hardness is high
<input type="checkbox"/>	Other



<input type="checkbox"/>	Fan Coil Unit
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Symptom (examples - list to be added to)

<input type="checkbox"/>	Fan motor will not run
<input type="checkbox"/>	No cooling, but fan is on
<input type="checkbox"/>	Too much cooling
<input type="checkbox"/>	Other

Fig. 4d

FORBID 65642660

ET 1822369J845
8822

☐ Oil Heat

Symptom (examples - list to be added to)

<input type="checkbox"/>	Burner will not start
<input type="checkbox"/>	Burner starts and fires but short cycles
<input type="checkbox"/>	Burner starts and fires but does not heat enough
<input type="checkbox"/>	Burner starts and fires then locks out on safety
<input type="checkbox"/>	Burner starts and fires but no flame is established
<input type="checkbox"/>	Burner starts and fires but loses flame and locks out on safety
<input type="checkbox"/>	Too much heat; burner runs continuously
<input type="checkbox"/>	Too little heat; burner runs continuously
<input type="checkbox"/>	Other

☐ Gas Heat

Symptom (examples - list to be added to)

<input type="checkbox"/>	Unit will not run
<input type="checkbox"/>	Fan will not run
<input type="checkbox"/>	Other

☐ Electric Heat

Symptom (examples - list to be added to)

<input type="checkbox"/>	Unit will not run
<input type="checkbox"/>	Fan will not run
<input type="checkbox"/>	Other

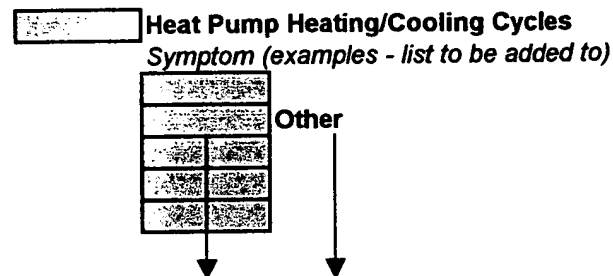
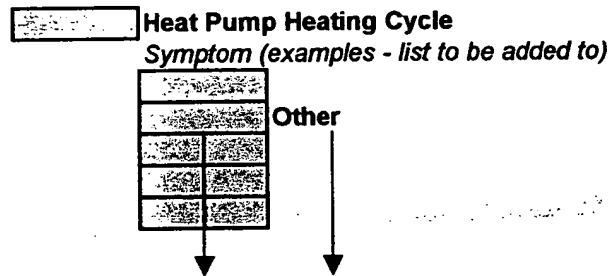
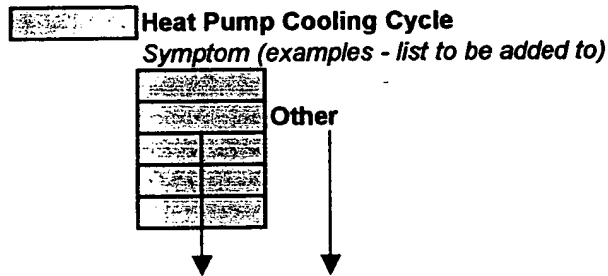
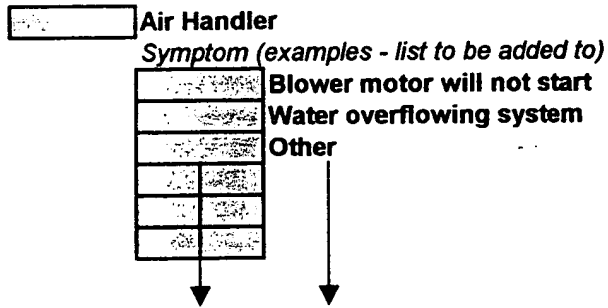
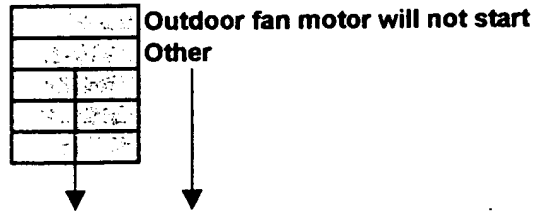
<input type="checkbox"/> Air Conditioning	<input type="checkbox"/> Air Cooled	<input type="checkbox"/> Geothermal
	<input type="checkbox"/> Water Cooled	<input type="checkbox"/> Dual Source
<input type="checkbox"/> Split System	<input type="checkbox"/> Package	

Symptom (examples - list to be added to)

<input type="checkbox"/>	Unit will not run
<input type="checkbox"/>	Outdoor unit section will not run
<input type="checkbox"/>	Compressor will not start
<input type="checkbox"/>	2nd stage compressor will not start

Fig 4e

103080-65642660



Symptom (examples - list to be added to)

Compressor fails to start (no hum)

Other



Ice Machine

--	--

Cuber

--	--

Flaker

Symptom (examples - list to be added to)

Unit will not run

Other



Automotive Air Conditioning

Symptom (examples - list to be added to)

Evaporator not cooling

Other



092459-0800-65642660

FIG. 49

V. TEST AND BALANCE - AIR VOLUME DATA SHEET

A. Mark all those that apply (X)

	Constant volume system
	VAV System
	Other

↓ ↓

B. Fill in all appropriate (highlighted) below:

Example:

	Design Air Flow VAV #1
	Other

↓ ↓

FIG. 4h

I. AVAILABLE INFORMATION DATA SHEET:

PART A

TYPE OF ANALYSIS (X which applies): Perf ☒ Trblstng ☐ T & B ☐

Job Name: X Y Z Homeowner Phone: (888) 555-8000 Fax: (888) 555-8000

Job Address: street 3333 Anywhere St. city state zip Fla. zip 32655

Other: (e-mail) Will Homeowner Co. other

Date: 7/6/01 Start Time: 1:40 PM

Refrigerant Type: R-22 Air-cooled (X) Water-cooled (X)

Unit Number or Specific Location: Only system at residence

Type of System (X): Chiller Package Split ☒ A/C H/P ☒ Refrig ☐

PART B

Package System
Chiller/Condenser
Fan Coil Unit:
Split System Condenser A/C
Split System Condenser H/P
Split System Air Handler
Refrigeration Unit Condenser
Refrigeration Unit Evaporator

manuf	quantity	model no	serial no	fan speed

DATA PLATE INFORMATION

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Main Supply Plenum Dimensions

Previous Month Electrical Consumption (KW)
Previous Month System Water Consumption (Gals)
Previous Month Gas Consumption (Cu Ft)

Return Plenum Dim	Total Cost (\$)

Fig. 5a

ET 18223695845
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THE UNIVERSITY OF CHICAGO

Temperatures, Refrigerant (X which applies)	Fahrenheit	Celsius
<u>Hot Gas Discharge at Compressor</u>		
Hot Gas Entering Condenser		
Mid Condenser Coil		
<u>Liquid out of condenser</u>		
<u>Liquid into expansion device</u>		
Mid Evaporator coil		
Suction line after evaporator		
<u>Suction line into compressor</u>		
Heat Pump, Suction line into rev Valve		
Heat Pump, Hot Gas line into rev Valve		

Pressures, Refrigerant (X which applies)	PSIG	PSIA
Hot Gas Discharge @ compressor		
Hot Gas Discharge @ condenser		
Liquid Refrigerant exit condenser		
Liquid Refrigerant enter Exp Device		
Suction Gas exiting evaporator		
Suction Gas entering compressor		

Electrical Data (Running)		Amps	Volts	Phase	hz	
		L1	L2	L3		
Compressor No 1						
Compressor No 2						
Compressor No 3						
Compressor No 4						
Condenser Fan Motors						
Quantity						
Blower Motors						
Quantity						
Pumps - Chiller Circ	1					
	2					
Evaporative Tower	1					
	2					
Water Cooled Circ	1					
	2					

Temperatures, Water (X which applies)	Fahrenheit	Celsius
Chiller	EWT	
	LCWT	
Water Cooled Condenser	EWT	
	LWT	

Temperatures, Air	Fahrenheit	Celsius
(X which applies)		
Air Entering Condenser	DB	
Air Entering Condenser	WB	
Air Exiting Condenser	DB	
Air Entering Evaporator	DB	
Air Entering Evaporator	WB	
Air Exiting Evaporator	DB	
Air Exiting Evaporator	WB	
Air Exiting Air Handler	DB	
Air Exiting Air Handler	WB	

Static before Air Handler	
Static after Air Handler	
Velocity pressure Transverse Avg at straight duct section with dimensions given for main supply or return plenums	

Water Flow Rate		PSIG	PSIA
(X which applies)			
Chiller, Evaporator	Return Line		
Chiller, Evaporator	Supply Line		
Water Cooled Equip			
Condenser	Return Line		
Condenser	Supply Line		

Fig. 5b

[illegible]

Water Flow Rate		PSIG	PSIA
(X which applies)			
Chiller, Evaporator	Return Line		
Chiller, Evaporator	Supply Line		
Water Cooled Equip			
Condenser	Return Line		
Condenser	Supply Line		

Fig. 6b

102030-5512660

ET 18.223695865
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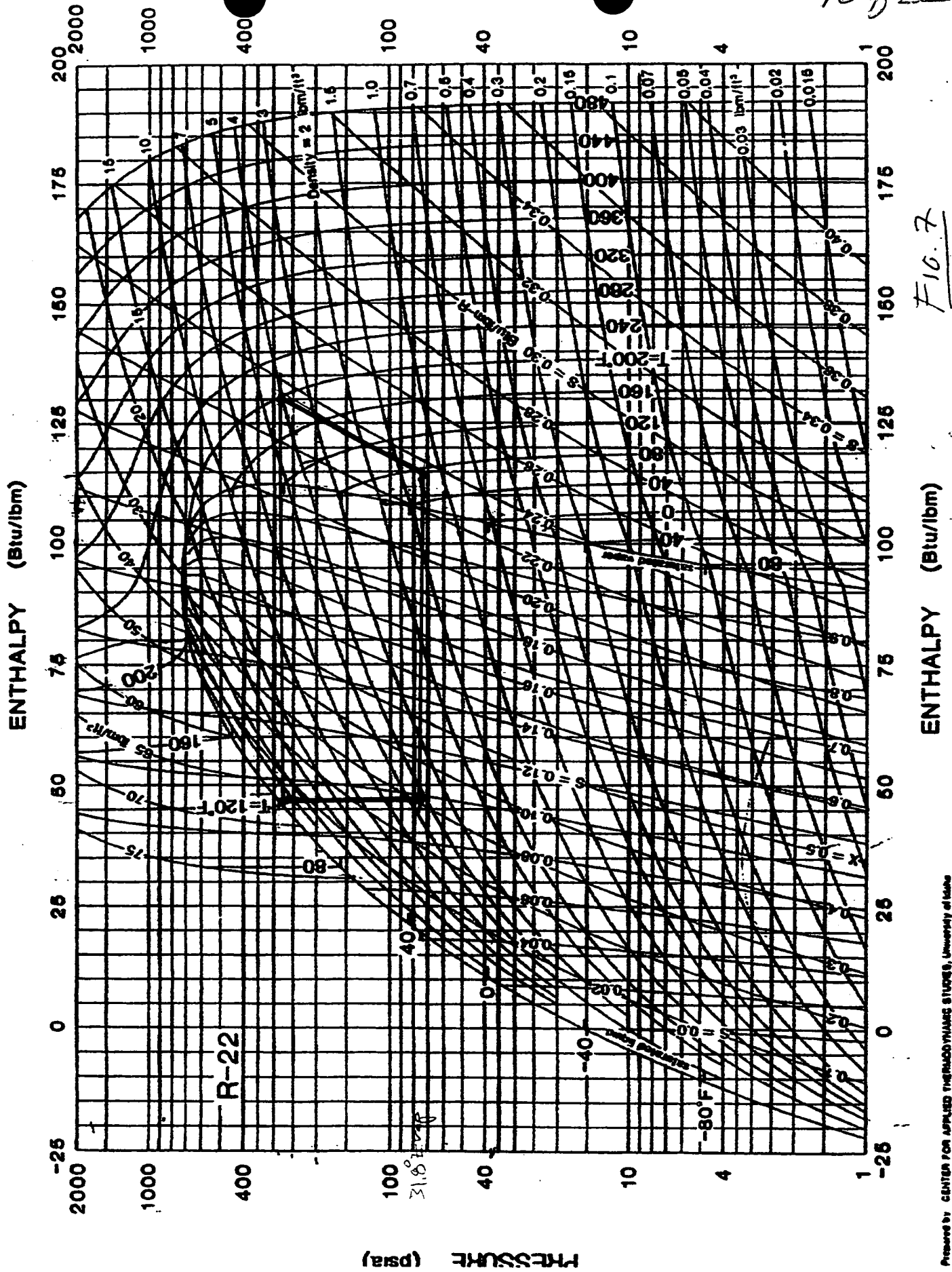


FIG. 7

ET182236958.US
17 of 22
19.9

Thermophysical Properties of Refrigerants

Refrigerant 22 (Chlorodifluoromethane) Properties of Saturated Liquid and Saturated Vapor

Temp. °F	Pressure, psia	Density, lb/ft ³		Volume, ft ³ /lb		Enthalpy, Btu/lb		Entropy, Btu/lb-°F		Specific Heat <i>c_p</i> , Btu/lb-°F		Velocity of Sound, ft/s		Viscosity, lb _m /ft-h		Thermal Cond., Btu/h-ft-°F		Surface Tension, dyne/cm	Temp., °F	
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor			
-250.00	—	107.37	—	—	—	-63.169	76.604	-0.21914	0.44952	—	0.1018	1.2914	—	395.	—	—	—	—	-250.00	
-240.00	—	106.41	—	—	—	-56.462	77.629	-0.18786	0.42332	—	0.1033	1.2860	—	403.	—	—	—	—	-240.00	
-230.00	—	105.48	—	—	—	-51.569	78.669	-0.16605	0.40101	—	0.1048	1.2807	—	411.	—	—	—	36.75	-230.00	
-220.00	0.002	104.58	16805.	—	—	-47.705	79.724	-0.14958	0.38211	—	0.1064	1.2754	—	419.	—	—	—	35.70	-220.00	
-210.00	0.004	103.70	6982.6	—	—	-44.426	80.796	-0.13616	0.36538	—	0.1080	1.2703	—	427.	—	—	—	34.67	-210.00	
-200.00	0.010	102.81	3151.5	—	—	-41.474	81.882	-0.12457	0.35048	—	0.1096	1.2653	—	435.	—	—	—	33.63	-200.00	
-190.00	0.022	101.92	1527.4	—	—	-38.706	82.984	-0.11411	0.33715	—	0.1113	1.2604	—	442.	—	—	—	32.61	-190.00	
-180.00	0.044	101.03	787.79	—	—	-36.038	84.100	-0.10439	0.32518	—	0.1130	1.2558	—	449.	—	—	—	31.59	-180.00	
-170.00	0.084	100.12	429.22	—	—	-33.424	85.230	-0.09521	0.31441	—	0.1147	1.2515	—	456.	—	—	—	30.58	-170.00	
-160.00	0.151	99.22	245.51	—	—	-30.839	86.373	-0.08644	0.30470	—	0.1165	1.2474	—	463.	—	—	—	29.57	-160.00	
-150.00	0.262	98.30	146.65	—	—	-28.269	87.528	-0.07800	0.29594	—	0.1183	1.2437	—	470.	—	—	—	28.57	-150.00	
-140.00	0.435	97.38	91.059	—	—	-25.708	88.692	-0.06986	0.28801	—	0.1201	1.2403	—	476.	—	—	—	27.57	-140.00	
-130.00	0.696	96.46	58.544	—	—	-23.150	89.864	-0.06198	0.28082	—	0.1221	1.2374	—	482.	—	—	—	26.59	-130.00	
-120.00	1.080	95.53	38.833	—	—	-20.594	91.040	-0.05435	0.27430	0.2555	0.1241	1.2349	3483.	488.	—	—	—	25.61	-120.00	
-110.00	1.626	94.60	26.494	—	—	-18.038	92.218	-0.04694	0.26838	0.2555	0.1262	1.2329	3384.	494.	—	0.0765	—	24.64	-110.00	
-100.00	2.384	93.66	18.540	—	—	-15.481	93.397	-0.03973	0.26298	0.2557	0.1285	1.2315	3290.	500.	—	0.0749	—	23.67	-100.00	
-90.00	3.413	92.71	13.275	—	—	-12.921	94.572	-0.03271	0.25807	0.2561	0.1308	1.2307	3198.	505.	—	0.0734	0.00292	22.71	-90.00	
-80.00	4.778	91.75	9.7044	—	—	-10.355	95.741	-0.02587	0.25357	0.2567	0.1334	1.2305	3110.	510.	—	0.0718	0.00315	21.76	-80.00	
-70.00	6.555	90.79	7.2285	—	—	-7.783	96.901	-0.01919	0.24945	0.2574	0.1361	1.2310	3023.	514.	—	0.0703	0.00338	20.82	-70.00	
-60.00	8.830	89.81	5.4766	—	—	-5.201	98.049	-0.01266	0.24567	0.2584	0.1389	1.2323	2937.	519.	—	0.0688	0.00360	19.89	-60.00	
-50.00	11.696	88.83	4.2138	—	—	-2.608	99.182	-0.00627	0.24220	0.2596	0.1420	1.2344	2852.	522.	—	0.0673	0.00382	18.96	-50.00	
-45.00	13.383	88.33	3.7160	—	—	-1.306	99.742	-0.00312	0.24056	0.2604	0.1436	1.2358	2810.	524.	—	0.0665	0.00393	18.50	-45.00	
-41.44b	14.696	87.97	3.4048	—	—	-0.377	100.138	-0.00090	0.23944	0.2609	0.1448	1.2369	2780.	525.	—	0.0660	0.00401	18.18	-41.44	
-40.00	15.255	87.82	3.2880	—	—	0.000	100.296	0.00000	0.23899	0.2611	0.1453	1.2374	2768.	526.	—	0.0658	0.00404	18.05	-40.00	
-35.00	17.329	87.32	2.9185	—	—	1.310	100.847	0.00309	0.23748	0.2620	0.1471	1.2393	2725.	527.	—	0.0651	0.00414	17.59	-35.00	
-30.00	19.617	86.81	2.5984	—	—	2.624	101.391	0.00616	0.23602	0.2629	0.1489	1.2414	2683.	529.	—	0.0643	0.00425	17.14	-30.00	
-25.00	22.136	86.29	2.3202	—	—	3.944	101.928	0.00920	0.23462	0.2638	0.1507	1.2437	2641.	530.	—	0.0636	0.00435	16.69	-25.00	
-20.00	24.899	85.77	2.0774	—	—	5.268	102.461	0.01222	0.23327	0.2648	0.1527	1.2463	2599.	531.	—	0.0629	0.00445	16.24	-20.00	
-15.00	27.924	85.25	1.8650	—	—	6.598	102.986	0.01521	0.23197	0.2659	0.1547	1.2493	2557.	532.	—	0.0622	0.00456	15.79	-15.00	
-10.00	31.226	84.72	1.6784	—	—	7.934	103.503	0.01818	0.23071	0.2671	0.1567	1.2525	2515.	533.	—	0.0614	0.00466	—	-10.00	
-5.00	34.821	84.18	1.5142	—	—	9.276	104.013	0.02113	0.22949	0.2684	0.1589	1.2560	2473.	534.	—	0.0607	0.00476	—	-5.00	
0.00	38.726	83.64	1.3691	—	—	10.624	104.515	0.02406	0.22832	0.2697	0.1611	1.2599	2431.	535.	0.615	0.0268	0.0600	0.00486	—	0.00
5.00	42.960	83.09	1.2406	—	—	11.979	105.009	0.02697	0.22718	0.2710	0.1634	1.2641	2389.	535.	0.597	0.0271	0.0593	0.00496	—	5.00
10.00	47.538	82.54	1.1265	—	—	13.342	105.493	0.02987	0.22607	0.2725	0.1658	1.2687	2346.	535.	0.580	0.0274	0.0586	0.00506	—	10.00
15.00	52.480	81.98	1.0250	—	—	14.712	105.968	0.03275	0.22500	0.2740	0.1683	1.2737	2304.	536.	0.563	0.0276	0.0579	0.00516	—	15.00
20.00	57.803	81.41	0.9343	—	—	16.090	106.434	0.03561	0.22395	0.2756	0.1709	1.2792	2262.	536.	0.546	0.0279	0.0572	0.00526	—	20.00
25.00	63.526	80.84	0.8532	—	—	17.476	106.891	0.03846	0.22294	0.2773	0.1737	1.2851	2219.	536.	0.530	0.0282	0.0566	0.00536	—	25.00
30.00	69.667	80.26	0.7804	—	—	18.871	107.336	0.04129	0.22195	0.2791	0.1765	1.2915	2177.	536.	0.515	0.0284	0.0559	0.00546	—	30.00
35.00	76.245	79.67	0.7150	—	—	20.275	107.769	0.04411	0.22098	0.2809	0.1794	1.2984	2134.	535.	0.499	0.0287	0.0552	0.00555	—	35.00
40.00	83.280	79.07	0.6561	—	—	21.688	108.191	0.04692	0.22004	0.2829	0.1825	1.3059	2091.	535.	0.484	0.0290	0.0545	0.00565	—	40.00
45.00	90.791	78.46	0.6029	—	—	23.111	108.600	0.04972	0.21912	0.2849	0.1857	1.3141	2048.	534.	0.470	0.0292	0.0538	0.00575	—	45.00
50.00	98.799	77.84	0.5548	—	—	24.544	108.997	0.05251	0.21821	0.2870	0.1891	1.3229	2005.	533.	0.456	0.0295	0.0532	0.00584	—	50.00
55.00	107.32	77.22	0.5111	—	—	25.988	109.379	0.05529	0.21732	0.2893	0.1927	1.3324	1962.	532.	0.442	0.0298	0.0525	0.00594	—	55.00
60.00	116.38	76.58	0.4715	—	—	27.443	109.748	0.05806	0.21644	0.2916	0.1964	1.3428	1919.	531.	0.429	0.0301	0.0518	0.00604	—	60.00
65.00	126.00	75.93	0.4355	—	—	28.909	110.103	0.06082	0.21557	0.2941	0.2003	1.3540	1876.	530.	0.416	0.0303	0.0512	0.00613	—	65.00
70.00	136.19	75.27	0.4026	—	—	30.387	110.441	0.06358	0.21472	0.2967	0.2045	1.3663	1832.	528.	0.404	—	0.0505	0.00623	—	70.00
75.00	146.98	74.60	0.3726	—	—	31.877	110.761	0.06633	0.21387	0.2994	0.2089	1.3796	1788.	527.	0.392	—	0.0499	0.00632	—	75.00
80.00	158.40	73.92	0.3451	—	—	33.381	111.066	0.06907	0.21302	0.3024	0.2135	1.3941	1744.	525.	0.380	—	0.0492	0.00642	—	80.00
85.00	170.45	73.22	0.3199	—	—	34.898	111.350	0.07182	0.21218	0.3055	0.2185	1.4100	1700.	523.	0.369	—	0.0486	0.00652	—	85.00
90.00	183.17	72.51	0.2968	—	—	36.430	111.616	0.07456	0.21134	0.3088	0.2238	1.4275	1655.	520.	0.358	—	0.0479	0.00661	—	90.00
95.0																				

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TABLE 6-6
Superheated Vapor — Constant Pressure Tables at Pressure Intervals — R-22
 V = volume in cuft/lb; H = enthalpy in Btu/lb; S = entropy in Btu/(lb)(°F) (saturation properties in parentheses)

Temp. °F	Absolute Pressure lbf/sq in.														
	75			80			85			90			95		
	60.304 PSIG (34.13 F)			65.304 PSIG (37.76 F)			70.304 PSIG (41.22 F)			75.304 PSIG (44.53 F)			80.304 PSIG (47.71 F)		
	V	H	S	V	H	S	V	H	S	V	H	S	V	H	S
40	0.74013	108.862	0.22303	0.66782	108.347	0.22107	—	—	—	—	—	—	—	—	—
50	0.78148	110.393	0.22845	0.70622	110.098	0.22454	0.66115	109.799	0.22272	0.61924	109.496	0.22098	0.58165	109.187	0.21928
60	0.82298	111.843	0.23309	0.74780	111.584	0.23125	0.69906	113.322	0.22949	0.65568	113.056	0.22781	0.61681	112.787	0.22819
70	0.82323	115.565	0.23632	0.76708	115.323	0.23450	0.71748	115.076	0.23278	0.67334	114.827	0.23112	0.63381	114.575	0.22963
80	0.84320	117.291	0.23948	0.78605	117.061	0.23770	0.73559	116.829	0.23599	0.69069	116.594	0.23437	0.65048	116.357	0.23281
90	0.86291	119.019	0.24260	0.80477	118.801	0.24083	0.75343	118.582	0.23915	0.70777	118.360	0.23755	0.66687	118.137	0.23602
100	0.88239	120.749	0.24566	0.82325	120.544	0.24392	0.77104	120.336	0.24226	0.72459	120.127	0.24068	0.68301	119.915	0.23817
110	0.90167	122.485	0.24868	0.84152	122.290	0.24696	0.78842	122.093	0.24532	0.74120	121.894	0.24376	0.69892	121.694	0.24228
120	0.92076	124.226	0.25168	0.85960	124.040	0.24995	0.80561	123.853	0.24833	0.75780	123.665	0.24678	0.71462	123.475	0.24531
130	0.93968	125.973	0.25460	0.87751	125.796	0.25290	0.82263	125.618	0.25130	0.77383	125.439	0.24977	0.73015	125.259	0.24831
140	0.95844	127.726	0.25750	0.89526	127.558	0.25582	0.83948	127.389	0.25422	0.78989	127.218	0.25271	0.74650	127.047	0.25128
150	0.97707	129.487	0.26036	0.91286	129.326	0.25869	0.85619	129.165	0.25711	0.80581	129.002	0.25561	0.76071	128.839	0.25418
160	0.99557	131.255	0.26319	0.93034	131.102	0.26154	0.87277	130.948	0.25997	0.82159	130.793	0.25848	0.77578	130.637	0.25706
170	1.0139	133.032	0.26599	0.94770	132.885	0.26435	0.88923	132.738	0.26279	0.83725	132.589	0.26131	0.79073	132.440	0.25990
180	1.0322	134.817	0.26876	0.96495	134.677	0.26712	0.90556	134.535	0.26558	0.85279	134.393	0.26411	0.80556	134.251	0.26271
190	1.0504	136.611	0.27150	0.98209	136.476	0.26987	0.92182	136.341	0.26833	0.86824	136.205	0.26687	0.82029	136.068	0.26548
200	1.0685	138.414	0.27421	0.99915	138.284	0.27259	0.93797	138.154	0.27106	0.88359	138.024	0.26961	0.83492	137.893	0.26823
210	1.0865	140.226	0.27690	1.0161	140.101	0.27529	0.95404	139.977	0.27376	0.89885	139.851	0.27232	0.84948	139.725	0.27094
220	1.1044	142.047	0.27956	1.0330	141.928	0.27795	0.97003	141.808	0.27844	0.92403	141.687	0.27500	0.86393	141.566	0.27363
230															

FIG. 9

092460"00001

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PERFORMANCE TABLE

BRISTOL COMPRESSORS
MODEL H25A56QCBC 60Hz

REFRIGERANT : R22
DISPLACEMENT : 5.46 CUBIC INCHES
MOTOR : 2 -POLE
VOLTAGE : 230-1-60
SUBCOOLING : 15.0 deg F
SUPERHEAT : 20.0 deg F

Release EN: A29905
Revision EN: B15908 Date: 7/94
Preliminary Data

CAPACITY (BTU/HR)

EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55
80	12512	15425	18645	22184	26057	30279	34864	39825	45178	50936	57113	63724	70782	78303	83700	88575
90	11331	14025	17018	20325	23960	27937	32271	36975	42064	47552	53453	59782	66553	73779	81176	89051
100	10079	12554	15322	18398	21796	25530	29614	34063	38890	44110	49737	55785	62269	69203	76600	84475
CONDENSING 110		11057	13602	16449	19611	23103	26939	31134	35700	40654	46008	51777	57976	64618	71717	79288
TEMPERATURE 120				14520	17448	20700	24290	28231	32539	37227	42310	47802	53717	60068	66872	74141
deg F 130						18365	21710	25400	29450	33875	38688	43903	49536	55599	62108	69076
140							22684	26478	30641	35185	40126	45478	51254	57469	64138	
150										31846	36514	41586	47077	53000	59371	

POWER (WATTS)

EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55
80	2163	2319	2465	2599	2721	2830	2925	3005	3071	3121	3155	3172	3171	3153		
90	2231	2404	2566	2719	2860	2990	3108	3213	3304	3382	3444	3492	3523	3538		
100	2271	2459	2640	2812	2974	3127	3268	3399	3518	3624	3716	3795	3860	3909	3943	3961
CONDENSING 110		2487	2687	2879	3064	3240	3407	3565	3712	3847	3972	4083	4182	4268	4339	4395
TEMPERATURE 120				2922	3130	3331	3525	3710	3887	4054	4210	4356	4491	4613	4723	4819
deg F 130						3400	3621	3836	4043	4242	4433	4614	4785	4946	5096	5234
140								3943	4182	4414	4640	4858	5067	5267	5458	5639
150											4832	5087	5336	5577	5810	6035

CURRENT (AMPS)

EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55
80	9.9	10.6	11.3	11.8	12.3	12.8	13.1	13.4	13.7	13.9	14.1	14.2	14.2	14.3		
90	10.1	10.9	11.6	12.3	12.8	13.4	13.9	14.3	14.6	15.0	15.2	15.5	15.7	15.9		
100	10.1	11.0	11.9	12.6	13.3	13.9	14.5	15.1	15.5	16.0	16.4	16.8	17.1	17.4	17.7	18.0
CONDENSING 110		11.1	12.0	12.9	13.7	14.4	15.1	15.8	16.4	17.0	17.5	18.0	18.5	19.0	19.4	19.8
TEMPERATURE 120				13.1	14.0	14.8	15.7	16.4	17.2	17.9	18.6	19.2	19.8	20.5	21.1	21.6
deg F 130						15.1	16.1	17.0	17.9	18.7	19.5	20.3	21.1	21.9	22.7	23.4
140								17.5	18.5	19.5	20.4	21.4	22.3	23.3	24.2	25.1
150											21.2	22.4	23.5	24.6	25.7	26.8

MASS FLOW (LB/HR)

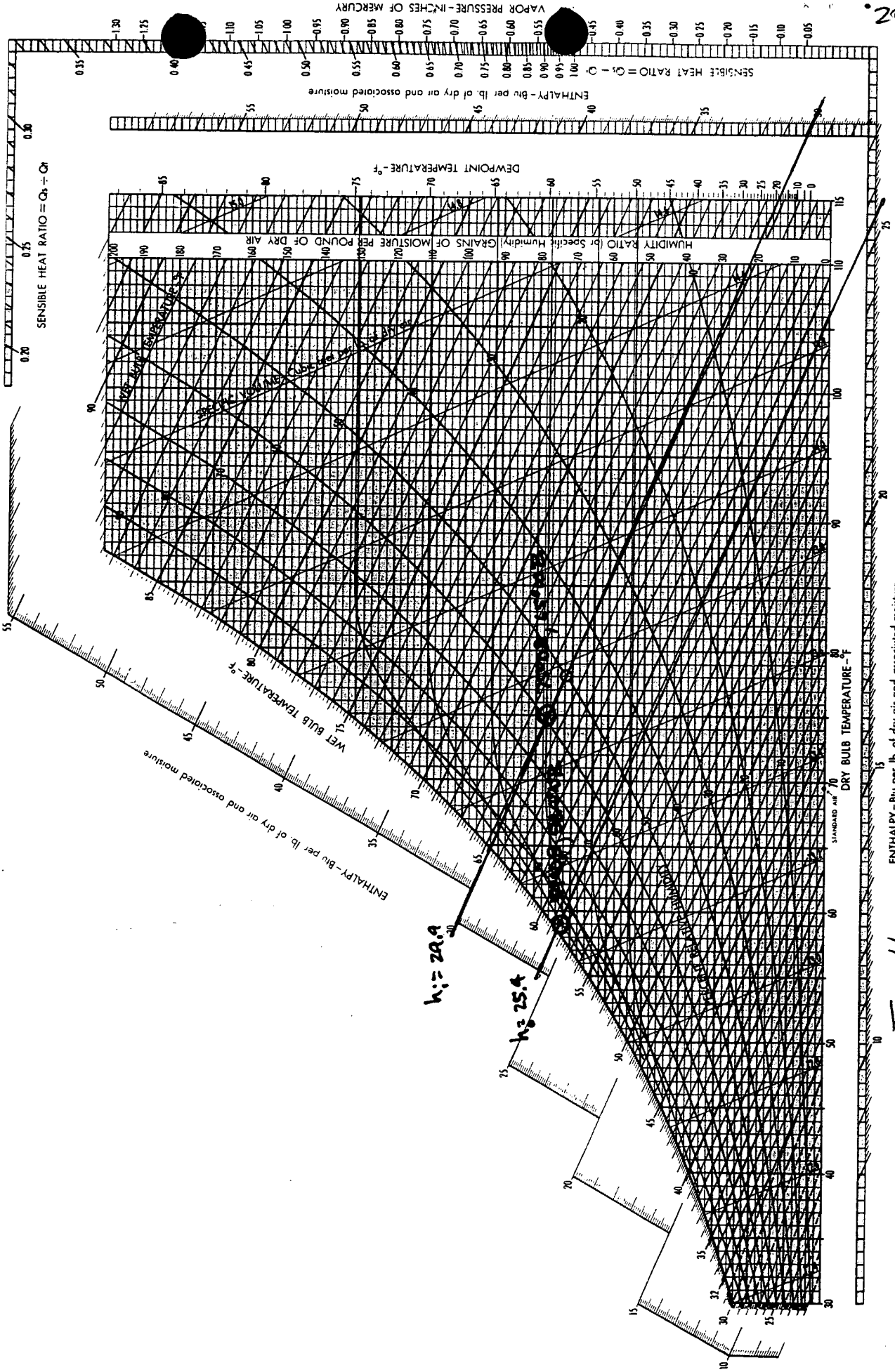
EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55
80	162.6	199.6	239.7	283.0	329.9	380.4	434.7	493.0	555.5	622.4	693.9	770.1	851.2	937.4		
90	153.9	189.5	228.3	270.4	316.1	365.5	418.8	476.2	537.9	604.0	674.7	750.2	830.7	916.4		
100	142.2	176.5	214.0	255.0	299.6	347.9	400.3	456.8	517.6	582.9	653.0	727.9	807.9	893.1	983.7	1080.0
CONDENSING 110		161.3	197.6	237.5	281.0	328.4	379.8	435.4	495.5	560.1	629.5	703.9	783.4	868.2	958.4	1054.4
TEMPERATURE 120				218.7	261.2	307.6	358.2	413.0	472.4	536.3	605.2	679.0	758.1	842.5	932.5	1028.2
deg F 130						286.6	336.3	390.4	449.1	512.4	580.7	654.1	732.8	816.9	906.6	1002.2
140								368.4	426.4	489.2	557.0	630.0	708.3	792.1	881.7	977.1
150											534.9	607.5	685.5	769.1	858.5	953.8

FIG. 10

PSYCHROMETRIC CHART

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Barometric Pressure 29.921 Inches of Mercury



$h_i = 29.9$

$h_o = 25.4$

FIG. 11

ENTHALPY - Btu per lb. of dry air and associated moisture

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BLOWER PERFORMANCE DATA

MODEL AH20

Blower Speed	S.C.F.M. at E.S.P.							
	.1	.2	.3	.4	.5	.6	.7	.8
High	2125	2100	2055	2020	1980	1930	1870	1820
Med. High	1730	1710	1695	1675	1655	1620	1600	1565
Low	1385	1375	1365	1360	1345	1290	1300	1280

Note: C.F.M. deliveries shown are with filter and coil in place.

FIG. 12

FORM 651250

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COOLING PERFORMANCE DATA																
HEAT PUMP MODEL NUMBER:		BRHS060B														
INDOOR COIL MODEL NUMBER:		U25R60RV														
INDOOR AIR		AIR TEMPERATURE ENTERING OUTDOOR UNIT														
		75°			85°			95°			105°			115°		
		CAPACITY MBTUH			CAPACITY MBTUH			CAPACITY MBTUH			CAPACITY MBTUH			CAPACITY MBTUH		
ID CFM	ID DBWB	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.
1500	85/71	63.7	39.0	4.51	60.4	37.8	4.85	57.1	36.8	5.19	53.7	35.4	5.50	50.2	34.1	5.80
	80/67	58.1	37.4	4.34	55.3	36.3	4.68	52.4	35.1	4.98	49.2	33.8	5.27	48.0	32.5	5.55
	75/63	53.2	36.1	4.22	50.4	34.9	4.52	47.8	33.6	4.81	44.7	32.3	5.08	41.7	31.0	5.30
	73/61	51.1	35.9	4.15	48.5	34.9	4.44	45.9	33.8	4.72	43.0	32.4	4.96	40.1	30.9	5.20
1700	85/71	64.9	41.3	4.55	61.5	40.1	4.89	58.1	38.8	5.23	54.6	37.6	5.54	51.0	36.4	5.85
	80/67	59.3	39.8	4.39	56.3	38.6	4.72	53.3	37.4	5.04	50.1	36.0	5.32	46.8	34.6	5.60
	75/63	54.4	38.1	4.25	51.7	36.9	4.55	48.9	35.7	4.85	45.8	34.3	5.10	42.6	32.8	5.35
	73/61	52.2	38.0	4.20	49.5	36.8	4.49	46.8	35.6	4.77	43.9	34.3	5.01	40.9	32.9	5.25
1900	85/71	65.9	43.4	4.58	62.4	42.2	4.93	58.9	40.9	5.27	55.4	39.7	5.59	51.9	38.4	5.91
	80/67	60.4	41.8	4.43	57.3	40.5	4.76	54.1	39.2	5.08	50.9	37.9	5.36	47.6	36.5	5.64
	75/63	55.5	39.9	4.29	52.6	38.7	4.59	49.6	37.4	4.89	46.4	36.0	5.14	43.1	34.6	5.39
	73/61	53.3	39.9	4.22	50.6	38.7	4.52	47.8	37.4	4.81	44.6	35.9	5.08	41.4	34.4	5.30
NOTE: All capacities are net with indoor fan already deducted at 1250 BTUH / 1000 CFM. KW rating for outdoor unit only.																

Fig. 13.

103030" 65642660